

Remarks

The present amendment responds to the Official Action dated December 22, 2003. A petition for a one month extension of time to respond and authorization to charge Deposit Account No. 50-1058 the extension fee in the amount of \$110.00 accompany this amendment. The Official Action rejected claims 4-12 under 35 U.S.C. 112, second paragraph, as being indefinite. Claims 1-12 were rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. Claims 1-6 and 9-12 were rejected under 35 U.S.C. 102(b) as being anticipated by Dillon et al., "Risk of Extreme Events Via Multi-objective Decision Trees: Application to Telecommunications" ("Dillon"). These grounds of rejection are addressed below following a discussion of the present invention to provide context. Claims 1, 3, 4, and 9-12 have been amended to be more clear and distinct. Claims 2 and 5-8 have been cancelled without prejudice. Claims 13-17 have been added. Claims 1, 3, 4, and 9-17 are presently pending.

The Present Invention

As discussed at page 2, lines 15 and 16¹, for example, the present invention provides an advantageous arrangement for gradual exposure of the step by step decisions that need to be taken at each level of a decision tree. It also advantageously provides aids to help a user make decisions at each level of the decision tree. See page 2, lines 16-18, for example. Each level of a decision tree includes a decision object with a choice between at least two other decision objects,

¹ It is noted that all page and line references in this discussion are to the pages and lines of the specification marked to show changes.

and a prompting mechanism, such as the browser buttons, described at page 2 lines 15-18, page 4 lines 18-20, and browser buttons 16 seen in Fig. 1.

As noted by the present invention at page 1, lines 15-17, a real world “decision tree can become extremely complex very quickly. This can make the use of such systems less instructive and consequently less useful in the decision making process.” The same point is readily illustrated in the prior art cited by the Official Action. See, for example, Dillon’s Fig. 8 which shows a complex “Decision tree of options.” Such complexities can effectively bury a user in information.

The present invention addresses such problems “and in particular aids a user to cope with the complexity of decision taking found in today’s distributed and ever increasingly global organizations.” Page 1, lines 18-20. To this end, after the initial object, a decision tree in accordance with the present invention “displays only visual objects which depend from objects which have been selected by a user.” Page 2, lines 3-8 and 12-14. This advantageous decision tree model “gradually exposes to the user the step by step decisions to be taken at each level in the tree. Furthermore, the model assists in the decision making process by prompting the users with issues to be considered and questions to be answered at each level within the structure.” Page 2, lines 15-18; see also page 4, lines 14-16.

In a preferred embodiment, “decision based information is provided to the user through browser buttons at each level within the tree” and “the information includes concepts which the user should consider prior to making the decision.” Page 3, lines 1-4; see also page 5, lines 9-19.

Fig. 1 illustrates an exemplary user interface display depicting a first decision tree in accordance with the present invention used to formulate decisions regarding the introduction of

the Euro currency by a financial institution. Page 3, lines 18 and 19, and page 4, lines 8 and 9. In Fig. 1, "only the selected path is shown" after the user has worked through the tree rather than a full display of 32 possible paths in the complete decision tree as discussed in greater detail below in conjunction with Exhibits A-D which are enclosed herewith. See, for example, page 4, lines 8-18, page 5, lines 20-22, and particularly page 4, line 18. Exhibits A-D illustrate the gradual exposure of the user to information results in Fig. 1 as discussed further below.

After the initial object 14A "Euro Change Over," the exemplary tree 12 of Fig. 1 advantageously only displays objects 14 which depend from objects 14B which have been selected by the user. Page 4, lines 11 and 12. In Fig. 1, the user has selected the following objects 14B: "Big Bang," "Dual Currency ATM," "Split Existing Types," and "New Cassettes" to result in the display 10.

Taking this selection process in steps, the user may first see Exhibit A with objects "Big Bang" and "Slow" the only visual objects which depend from initial object 14A "Euro Change Over." The arrowhead around the object "Big Bang" reflects the user's selection of that object and would not be seen prior to selection of that object. In connection with the virtual object 14A, browser buttons 16 allow the user to consider information related to "Strategic thinking prior to choices to be taken." Similarly, in connection with the objects "Big Bang" and "Slow," browser buttons 16 allow consideration of information, such as "Speed of Changeover to Euro."

Upon selection of object 14B "Big Bang," the exemplary display of Exhibit B may result. In Exhibit B, only the objects "Single Currency ATM" and "Dual Currency ATM" dependent on "Big Bang" are displayed. No objects dependent on "Slow" are displayed. Similarly, browser

buttons 16 for information relating to the question “Single or Dual Currency Storage?” now appear.

After selection of object 14B “Dual Currency ATM” represented by the arrowhead around the object, the exemplary display of Exhibit C may result. Now the objects “Split Existing Types” and “Create New Types” dependent on object 14B “Dual Currency ATM” are displayed with browser buttons 16 for information related to the topic “How cassette type numbers are assigned to currencies.”

After selection of object 14B “Split Existing Types,” only additional objects “Upgrade Cassettes” and “New Cassettes” dependent thereon are displayed as shown in Exhibit D. Additional browser buttons 16 related to the topic “To Front Load by acquiring new cassettes or not” are now also displayed. Finally, selection of object 14B “New Cassettes” results in the display 10 seen in Fig. 1 with objects “Central” and “On Site” dependent on “New Cassettes” now displayed and browser buttons 16 for the topic “Cassettes can be adjusted & loaded on-site or off-site.” Thus, a user will work his or her way through the tree until he or she reaches a final object. The gradual release of information aids the user in coping with the complexity of decision taking.

By contrast with Fig. 1, Fig. 2 shows a second decision tree in which a different set of decision have been made. “Slow” deployment, “Single Currency,” “Create New Types,” “Upgrade Cassettes,” and “On Site” objects 14B have all been selected with only the objects dependent from those selected objects gradually displayed to the user.

Proposed Drawing Corrections

Red-lined proposed drawing corrections are submitted for the Examiner's approval. The corrections delete the phrase "or phased" in Figs. 1 and 2 to make the drawings consistent with the text at page 5, lines 11-13. A replacement set of drawings with the proposed correction made is also enclosed.

Replacement Specification

The replacement specification adds a number of commas and other punctuation changes; adds paragraphing; and corrects a number of spellings including change a number of British to American spelling changes, such as characterise to characterize. No new matter is added. A marked up version is also submitted as per 37 C.F.R. 1.125.

Section 112 Rejection of Claims 4-12

Claims 4-12 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regard as the invention. Claim 4, as currently amended, specifically points out the claimed invention in a series of steps including the steps of displaying a decision level, generating a plurality of browser buttons, responding to a selection of a browser button, responding to a selection of a visual object and continuing with the steps of displaying a decision level, generating a plurality of browser buttons, responding to a selection of a browser button, responding to a selection of a visual object, until a final visual object is selected. Claim 4, as currently amended, meets the requirements of 35 U.S.C. 112, second paragraph.

Section 101 Rejection of Claims 1-12

Claims 1-12 were rejected under 35 U.S.C. 101 because the claimed invention was purportedly directed to non-statutory subject matter. While this analysis is hereby traversed, claim 1, as currently amended, clearly meets the requirements of 35 U.S.C. 101. It recites a visual modeling tool having a user interface with a display, and determines how the tool operates to gradually display a decision tree level by level. Claim 4, as currently amended, specifically points out the claimed invention in a series of steps and also conforms to the requirements of 35 U.S.C. 101.

The Art Rejections

All of the art rejections hinge on the application of Dillon. As addressed in greater detail below and in light of the current amendments, Dillon does not support the Official Action's reading of Dillon and the rejections based thereupon should be reconsidered and withdrawn. Further, the Applicant does not acquiesce in the analysis of Dillon made by the Official Action and respectfully traverses the Official Action's analysis underlying its rejections.

Claims 1-6, and 9-12 were rejected under 35 U.S.C. 102(b) as being anticipated by Dillon. Dillon's use of decision trees appears to require an analysis of all decision paths in a decision tree model and evaluates the decision tree starting at the terminal branches and works back to the base in order to determine the best choices to make at the decision nodes. See Dillon, page 265, column 2, paragraph 2. Dillon's describes a traditional decision tree method enhanced by incorporating into the decision tree model extensive formulation of cost and probability

density functions on each node. See Dillon, page 267, Fig. 8 and column 2, paragraph 2, beginning “Each chance node has an infinite number of realizations ... continuing for 12 lines to ... for the fiber branch of the decision tree.” (emphasis added) and page 268, as well as Fig. 9. Dillon further explains that the cost and probability density functions are combined through use of a Monte Carlo simulation for each branch of the decision tree. See Dillon, page 268, column 1, paragraph 2, first sentence as follows: “A Monte Carlo simulation will be used to combine the density functions for each branch of the decision tree.” (emphasis added). See also Dillon, page 268, column 2, paragraph 3, first two sentences “There are two ways of solving for the distribution of each branch of the decision tree. The first method is to combine the distributions analytically, and the second is to use simulation to predict the final distribution.” (emphasis added). This evaluation of all branches of a decision tree is precisely what the present invention intends to avoid. See page 4, lines 14-16.

Unlike Dillon and traditional methods for solving a decision tree, which work backward from terminal branches back to the base of the tree, Dillon, page 265, column 2, paragraph 2, the present invention causes a user to work through the tree beginning from an initial object, page 4, lines 11-15, making selections based on information provided through browser buttons, page 4, lines 18-20. Also, unlike Dillon, the present invention does not consider all branches of a decision tree, since only the selected path is shown. See page 4, lines 17 and 18. The present invention is further unlike Dillon, since the present invention provides a user interface at each decision level allowing a user to use browser buttons at each decision level for accessing considerations, such as, pertinent questions to ask prior to making a selection, or answers to

those questions from other users to assist in the decision making. See page 4, line 18 – page 5, line 8, page 5, lines 14-19, and browser buttons 16 in Figs. 1 and 2.

Specifically, and as recited in the currently amended claim 1, a visual modeling tool is adapted in accordance with the present invention. See page 2, lines 20 and 21. A user interface including a display for interacting with the visual modeling program is utilized. See page 4, lines 5-7. The decision tree is displayed gradually “[a]s the user works through the tree ...” page 4, lines 12-14, “[i]nformation is provided to the user through browser buttons 16 once the user has been provided with a choice between, at least, two options.” page 4, lines 18-20. An example, further describing the successive display of the decision tree through selected use of browser buttons is discussed on page 5, lines 9-11 where: “Accordingly, if a user is faced with the question “Big Bang or phased deployment” he or she should consider the relevant topics above (reference to Fig. 3 which illustrates the user interface of Figures 1 and 2 displaying a list of CONSIDERATIONS to be thought about before making a considered choice) including the national Central Bank directives and our resources to meet the choice made.” The display of a decision tree, in which “[a]fter the initial object 14A the tree 12 displays only visual objects 14 which depend from objects 14B, which have been selected by a user,” does not include paths beyond the indicated decision level until a “considered” choice is made. See page 4, lines 11 and 12. Browser buttons, part of the user interface display, for accessing information are illustrated as being made available at each decision level of the tree, see Figs. 1 and 2, browser buttons 16. A step by step process is followed, where for each “considered” selection, the next level of the decision tree is displayed with the possibility of further choices to be made. See page 2, lines 15-

18. A user's "considered" choices result in a decision tree that displays only visual objects that depend from objects which have been selected by the user. See page 4, lines 9-14.

Claim 1 as currently amended addresses a "computer implemented visual modeling tool" having "a user interface including a display." The gradual display of successive levels of a decision tree is claimed in claim 1 as follows: "the visual modeling tool operating to interactively and gradually display successive decision levels of a visual multi-level decision tree." The display of multiple visual objects "represents a choice between the visual objects." Further, the user interface operates "to control the display so that as a user selects visual objects, the display displays only visual objects which depend from visual objects which have been selected." The relied upon art does not show this combination of elements cooperating as claimed.

Claim 4 as currently amended recites "[a] computer implemented visual modeling method for interactively displaying in succession decision levels of a visual multi-level decision tree." As claimed, the user display displays the tree as it would exist up to a decision level and must be interactive with a user's selection. To support making a selection, the following steps are claimed: "generating a plurality of browser buttons at each decision level for providing information concerning a choice of a visual object" and "responding to a selection of a browser button by displaying information concerning a choice of a visual object." A decision level by decision level process is claimed as follows: "responding to a selection of a visual object by causing a current decision level to advance to a next decision level for non-final visual objects" and "continuing with the steps of displaying a decision level, generating a plurality of browser buttons, responding to a selection of a browser button, responding to a selection of a visual

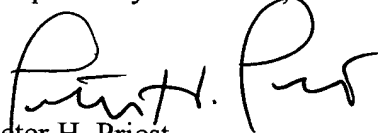
Appl. No. 09/885,515
Amdt. dated April 21, 2004
Reply to Office Action of December 22, 2003

object, until a final visual object is selected.” The relied upon art does not show this combination of elements cooperating as claimed.

Conclusion

All of the presently pending claims, as amended, appearing to define over the applied references, withdrawal of the present rejection and prompt allowance are requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Peter H. Priest". The signature is stylized with a large, looped "P" and a cursive "Priest".

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MEANS FOR AND METHOD OF DISPLAYING
A VISUAL DECISION TREE MODEL

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BACKGROUND OF THE INVENTION

5 _____ The present invention relates to a means for and method of displaying a visual ~~Decision~~
decision tree model.

_____ A decision tree is a logical pathway of steps involved in considering the input necessary
to make a decision. Often, information necessary to make a truly informed decision will come
from a host of different people from different commercial disciplines. Some information may
10 come from within and some from outside of a company.

_____ The decision tree model (which is created by a graphical-based or symbol-based tool) is a
very effective way to present and communicate the resulting deliverable. Decision trees can be
modelled using tools such as the METIS Object Oriented Visual Modelling tool, sold by
Computas Ltd.

15 _____ Clearly, in real commercial decision making, the options available can be numerous.
Consequently, a decision tree can become extremely complex very quickly. This complexity can
make the use of such systems less intuitive and consequently less useful in the decision making
process.

_____ The present invention addresses this problem and in particular aids a user to cope with
20 the complexity of decision taking found in today's distributed and ever increasingly global
~~organisations~~organizations. The means and method in accordance with the present invention
also enables managers to communicate, distribute and share ~~then~~their decision taking across the
Internet.

SUMMARY OF THE INVENTION

_____According to a first aspect of the present invention, there is provided a computer implemented means for displaying a visual ~~Decision~~-decision tree model in a symbol based table

5 the visual decision tree model including a plurality of visual objects each of the visual objects being linked to at least one other object to form a decision tree, ~~characterised~~-characterized in that, after the initial object, the tree displays only visual objects which depend from objects which have been selected by a user.

_____According to a second aspect of the present invention, there is provided a computer

10 implemented method of displaying a visual architecture model in a symbol based table, the visual architecture model including a plurality of visual objects each of the visual objects being linked to at least one other object to form a decision tree, ~~characterised~~-characterized in that after the initial object the tree displays only visual objects which depend from objects which have been selected by a user.

15 _____The decision tree model gradually exposes to the user the step by step decisions to be taken at each level in the tree. Furthermore, the model assists in the decision making process by prompting the users with issues to be considered and questions to be answered at each level within the structure. Having made this selection, the model then identifies the Cost Risks and Work involved resulting from the decisions taken.

20 _____The Decision Tree Methodology is a commonly used management technique and it is not this methodology but its application within a visual-modelling tool that is new and unique.

_____ Preferably, decision based information is provided to the user through browser buttons at each ~~Level~~ level within the tree.

_____ Most preferably, the information includes concepts which the user should consider prior to making the decision.

5 _____ Alternatively, the information includes questions, which the user should ask prior to making the decision.

_____ Still further, the information includes answers to those questions which have been put forward by other users.

10 _____ Preferably, once the final object in the tree is presented consequences of that choice are presented to the user.

_____ Most preferably, the consequences include cost implications of the choice.

_____ Alternatively, the consequences include workload implications of the choice.

_____ Alternatively, the consequences include risk analysis of the choice.

15 **BRIEF DESCRIPTION OF THE DRAWINGS**

_____ An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

_____ ~~Figure 1~~ Fig. 1 illustrates a user interface display, displaying a first decision tree in accordance with the present invention;

20 _____ ~~Figure~~ Fig. 2 illustrates a user interface display, displaying a second decision tree in accordance with the present invention; and

~~Figure-Fig.~~ 3 illustrates the user interface of ~~Figures-Figs.~~ 1 and 2 displaying a list of CONSIDERATIONS to be thought about before making a considered choice.

DETAILED DESCRIPTION

5 ~~Figure-Fig.~~ 1 illustrates a user interface display 10 of an object oriented visual modelling tool, such as the METIS tool provided by Computas Ltd, operating in accordance with the present invention.

~~The display~~ 10 indicates a decision tree 12, which is being ~~utilised~~-utilized to formulate decisions regarding the introduction of the Euro currency by a financial institution. The tree 12 includes a plurality of visual objects 14 each of which are linked to at least one other object 14 to form the decision tree 12. After the initial object 14A, the tree 12 displays only visual objects 14 which depend from objects 14B, which have been selected by a user. As the user works through the tree the branches of the tree which would depend from objects 14, which have not been selected are not shown. This approach leads away from the trend in the field in which as much information as possible is provided to a user in order to make decisions. Instead, a gradual release of information is used in the method and means in accordance with the present invention.

~~At this stage,~~ the viewer should note that the current decision tree if and when fully ~~Displayed-displayed~~ has 32 paths in all. However, only the selected path is shown. Information is provided to the user through browser buttons 16 once the user has been provided with a choice between, at least, two options. In the present embodiment the considerations in question are detailed in ~~Figure-Fig.~~ 3 and include[[:]] :

~~Consider any relevant~~[[:]] National Central Bank directives or policies;

_____ Consider your business requirements;

_____ Consider the Automated Teller Machine (ATM) ~~utilisation~~utilization pattern for the market in question;

_____ Consider available resources;

5 _____ Consider the level of customer availability requirements;

_____ Consider switch networking interface requirements;

_____ Consider other networking interface requirements; and

_____ Consider front loading prior to E-moment[[]].

_____ Accordingly, if a user is faced with the question "Big Bang or phased deployment" he or
10 she should consider the relevant topics above including the national Central Bank directives and our resources [[t]]to meet the choice made. In the example illustrated in ~~figure I~~Fig. 1 "Big Bang" was selected. This choice means a rapid deployment. However, a slow deployment may be appropriate in other territories or markets.

_____ Alternatively or additionally, the information may include questions, which the user
15 should ask prior to making the decision. For simplicity, no such questions are illustrated. However, they may include questions, which help with the aforementioned considerations in order to focus all user's minds on the same topics, so that each user makes decisions based on the same criteria. Answers to those questions, which have been put forward by other users, may also be available to a user to assist in the decision making process.

20 _____ Thus, a user will work his or her way through the tree until they come to a final object. Once the final object in the tree is presented, consequences of that choice may be presented to the user. For example, the user may be informed of cost implications of the choice.

Alternatively or additionally, the ~~uses~~users may be informed of workload implications of the choice. This information will assist in personnel management issues resulting from the choice.

Alternatively or additionally, a risk analysis of the choice may be provided.

____ While the invention has been illustrated and described in detail in the drawing and
5 foregoing description, it should be understood that the invention may be implemented through
alternative embodiments within the scope of the present invention.

MEANS FOR AND METHOD OF DISPLAYING
A VISUAL DECISION TREE MODEL

ABSTRACT

5 _____A computer implemented means for and method of displaying a visual decision tree
model in a symbol-based table is disclosed. This visual model includes a plurality of visual
objects each of the visual objects being linked to at least one other object to form a decision tree.
The invention is ~~characterised~~ characterized in that after the initial object the tree displays only
visual objects that depend from objects which have been selected by a user. Thus, the device
10 displays only the path selected.

ANNOTATED SHEET SHOWING CHANGES

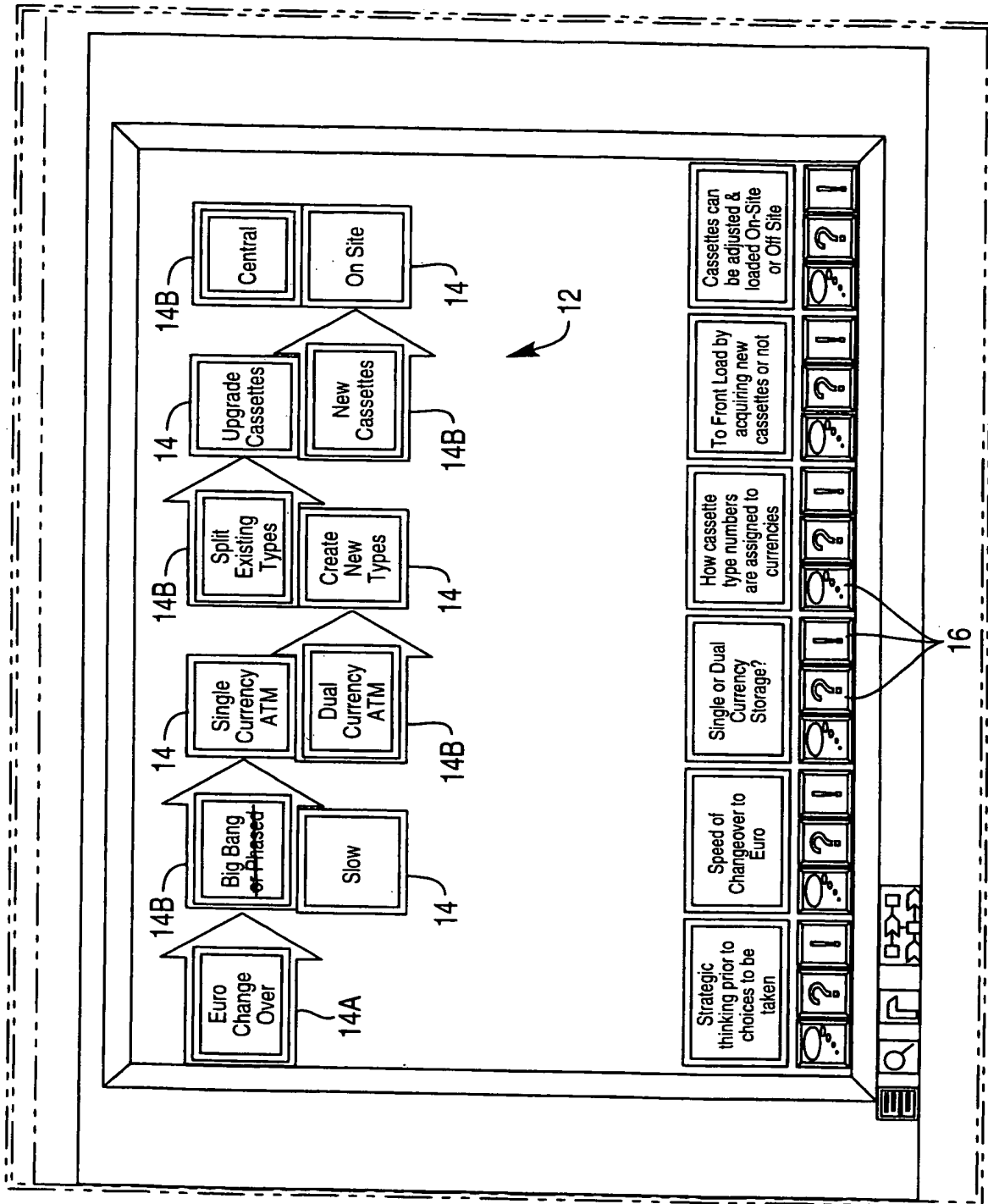


FIG. 1

ANNOTATED SHEET SHOWING CHANGES

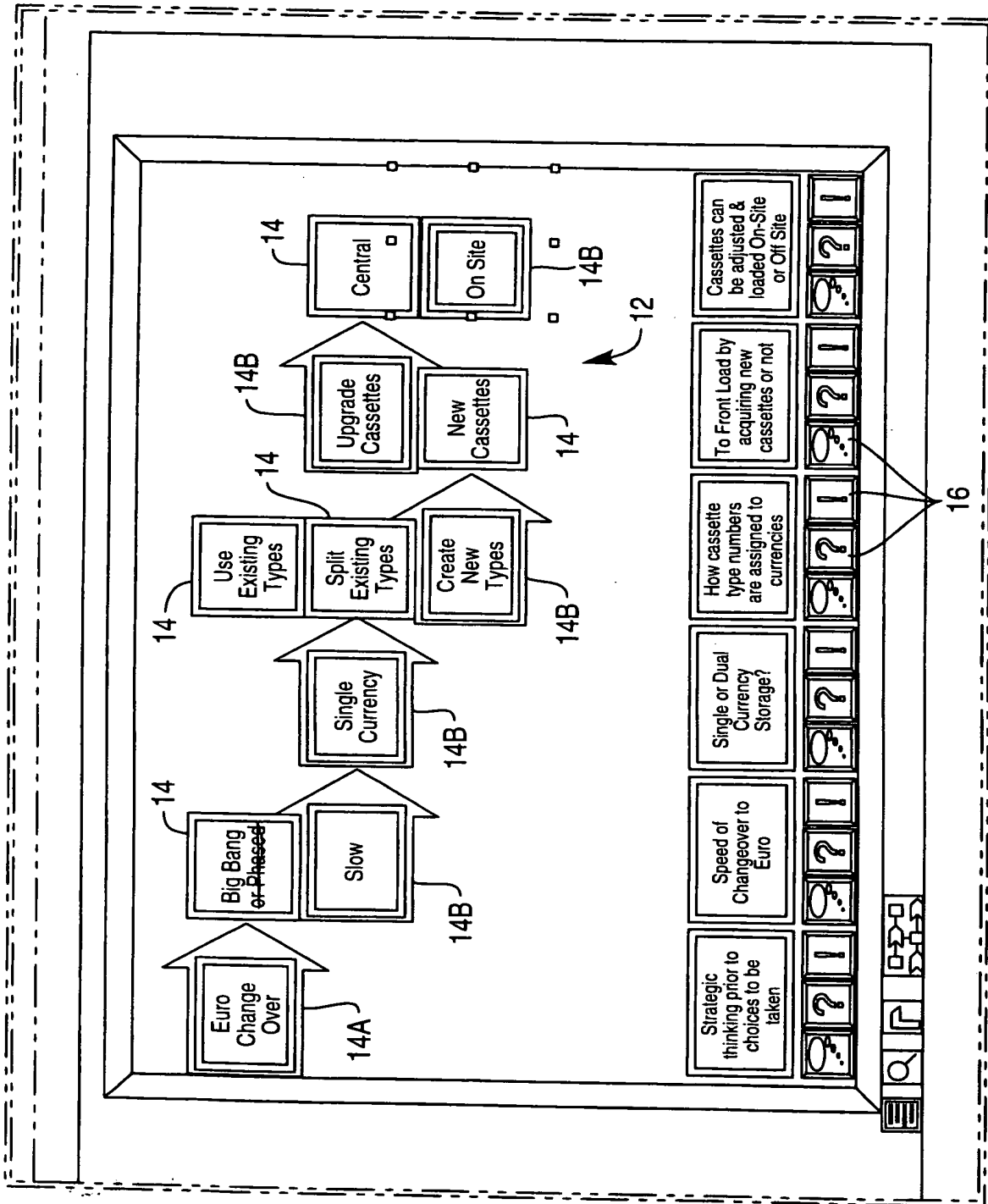


FIG. 2



Exhibit A

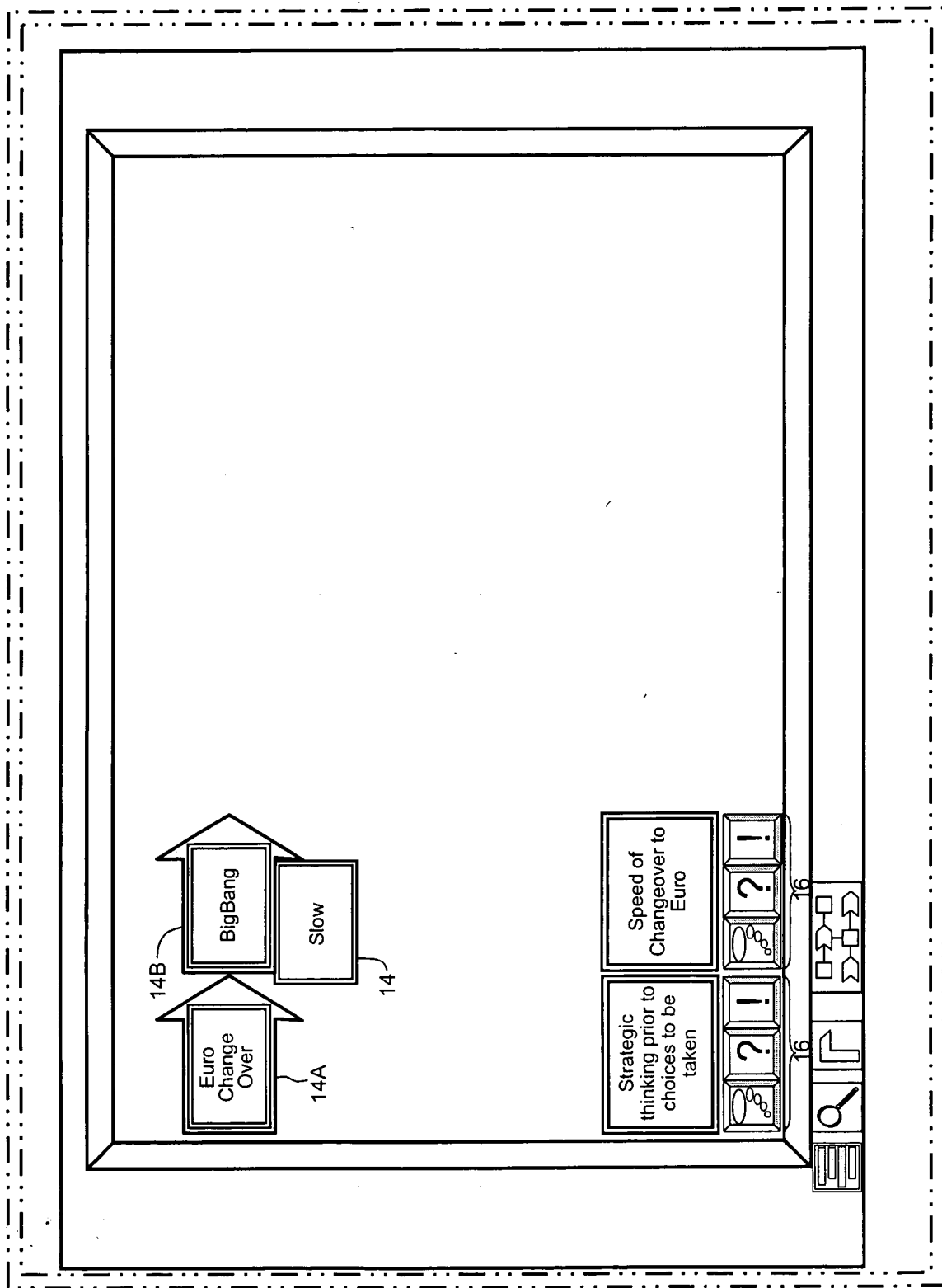




Exhibit B

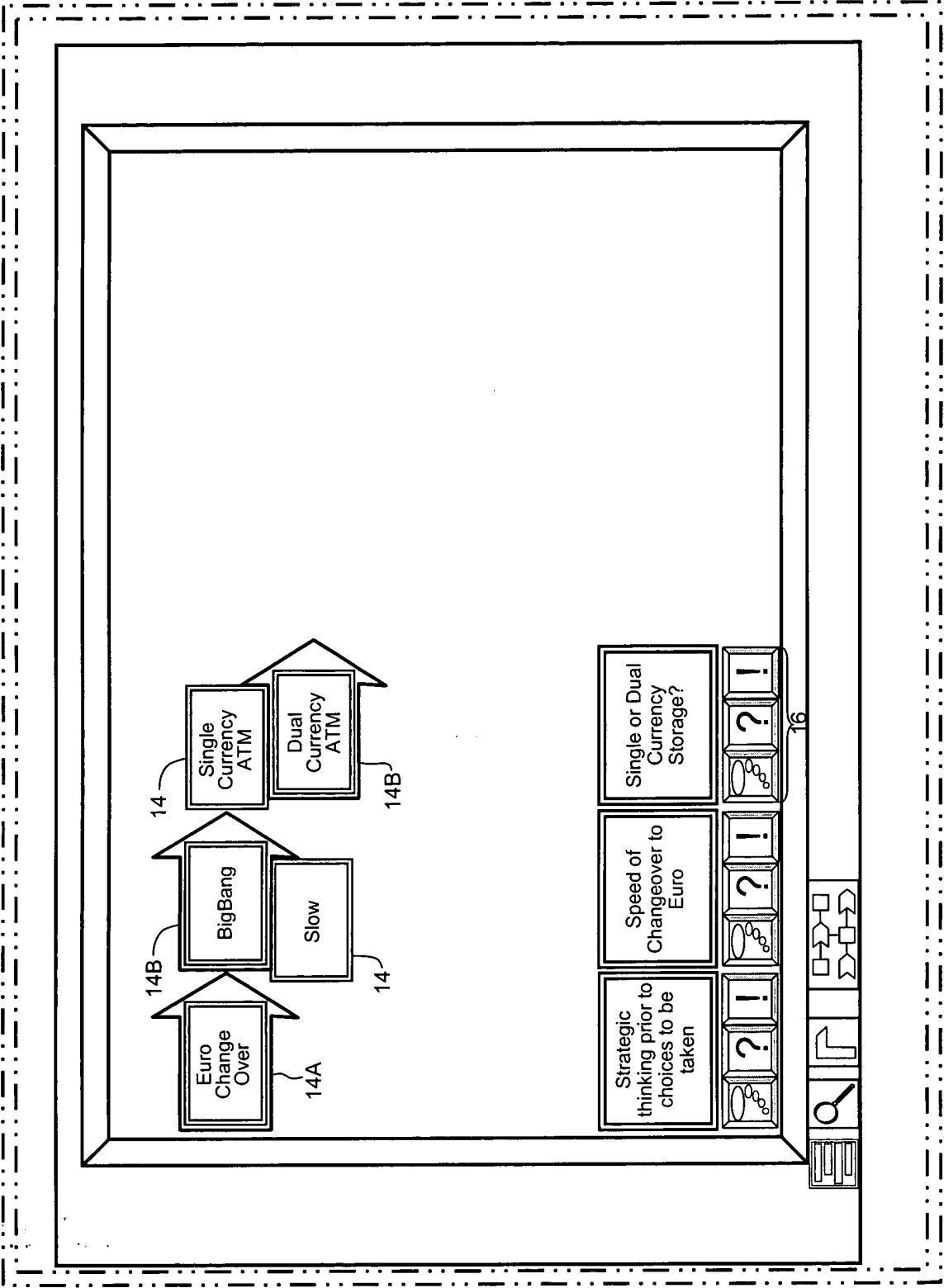




Exhibit C

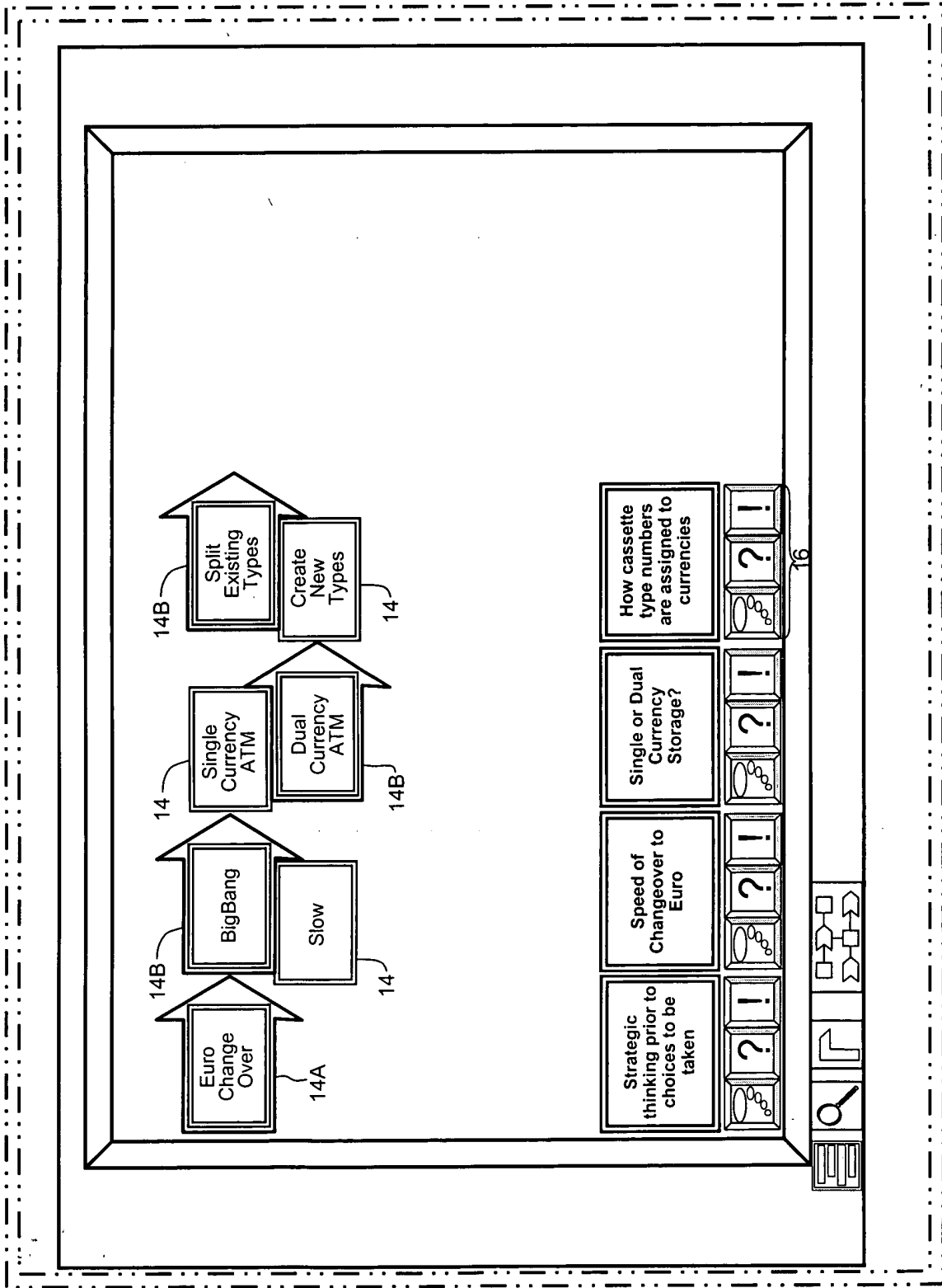




Exhibit D

